Poreform
Water absorptive surface and subterranean basin, Las Vegas, NV, USA

Main authors

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Summary by the jury

The design proposal for the city of Las Vegas repositions water infrastructure as a civic project. Facing a significant shortage of water in an arid region, local drainage systems are incapable of handling and collecting the water that floods the city which is positioned in a valley when it rains. Poreform, a porous concrete surface poured in place with fabric formwork, manages to absorb water, feeding rain runoffs into subterranean basins with a capacity of over 75,000 megaliters (20 billion gallons). Capable of rapid saturation and slow release, the pores of this “urban skin” are inlets to a new infrastructure that reframes water as a valuable resource rather than a liability.

Appraisal by the jury

The jury commends the project’s objective to conceive infrastructure as an architectural undertaking. Instead of considering infrastructure as a mere servant to utility, it is reclaimed as a truly public matter of concern and treated as equally social in scope and design – an untapped site for making and altering space. The proposal additionally foregrounds the need to treat water as a common good by proposing a modulated ground surface for water retention to prevent urban flooding. While designed for a specific site, the project offers a welcome answer to the general problem of water scarcity – a straightforward, but nonetheless beautiful proposition for a global challenge.

Project data

Context: Architecture, building and civil engineering
Client: Water Pore Partnership (WPP)
Background: Research project
Planned start: May 2016

Further authors

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Image 1: Poreform is a concrete surface capable of rapid water absorption to prevent urban flooding. The surface feeds water to subterranean basins, like the Downtown Tank shown here. The surface is located within the public realm and claims a stake as civic infrastructure that is as important as its nearby sister, the Hoover Dam.

Image 2: Las Vegas loses 74,000 megaliters (60,000 acre-feet) of rainfall to the shallow aquifer per year in the form of urban runoff, the result of frequent major flooding. At the same time, the city is spending precious energy pumping water uphill from Lake Mead to the newest suburbs, and from the deeper principal aquifer to offset what is lost to runoff. Downtown floods because all detention basins are located in the suburbs. We propose a system of smaller basins for the dense downtown to encourage strategic growth.
Las Vegas undervalues its water and is facing a detrimental shortage in the near future.

Flood control basins located downtown will feed a primary basin, the Downtown Tank.

The proposed network of flood control infrastructure is finely calibrated to absorb specific volumes.

Poreform functions as a surface, curb drain, foundation, small basin and collection tank.

The Downtown Tank generates hydroelectric power to offset urban growth.

The surface of Poreform is influenced by the Thorny Devil Lizard and erosion control construction.

The Downtown Tank is a place of public awareness and education.

The Downtown Tank is a place of cultural versatility and a community partner.